Key

Maryland
Algebraic Thinking Foundations Grade 6

MSA Review
Day 18

Calculator Active

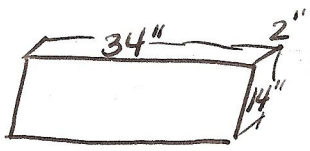
1. Sakani's parents bought her a sandbox for her second birthday. The sandbox is a rectangular prism and has the following dimensions: 34 inches long by 14 inches wide. They plan on putting 2 inches of sand in the sandbox. How many cubic inches of sand will her parents need to fill the sandbox?

A. 50 in.^{3}

B. 476 in.^{3}

C. 478 in.^{3}

(D.) 952 in.^{3}



34
× 2
68
× 14
272
680
952 in^3

2. Ms. Collins began the school week with P pencils in her pencil box. When she looked in her pencil box at the end of the week, there were only 2 pencils left. Which of the following algebraic expressions represents the number of pencils that have been used this week?

A. $P - 10$

(B.) $P - 2$

C. $2 + P$

D. $10 + P$

3. Read the statements below. Which statement is true for both equiangular and acute triangles?

A. All three angles in the triangle are equal. not for acute

(B.) All three angles in the triangle are acute. ✓

C. All three sides of the triangle could be different lengths. not for equiangular

D. All three of the statements above are true for both equiangular and acute triangles. X

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4. A movie theater owner recorded the number of tickets sold for each movie on a Saturday. The theater plays fourteen movies at a time. The number of tickets sold is shown below.

346	287	265	308	261	274	309
294	302	311	347	326	283	318

The manager then made a stem-and-leaf plot. Explain what is wrong with his stem-and-leaf plot.

Stem	Leaf
26	1 5
27	4
28	3 7
29	4
30	2 8 9 11
31	8
32	6
33	
34	6 7

Key: 26|1 = 261.

311 = 31|1

A. The stem should only have one digit, and the leaf should have two digits. leaf is only 1 digit

B. There are not as many data points in the stem-and-leaf plot as in the data list. both are 14

C. The number 311 is displayed incorrectly in the steam-and-leaf plot. ✓

D. There should be a leaf for the stem of 33. no because no 330 - 339 s

5. Marcellus is camping in the Blue Ridge Mountains. When he leaves his campsite to go fishing, he travels ⁻23 feet. Which of the following does **not** mean the same as ⁻23 feet?

A. descend 23 feet means down 23 ft -23

B. go down 23 feet ✓ -23

C. 23 feet lower means down 23 ft -23

D. ascend 23 feet means go up 23 +23

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MSA Review
Day 19

Calculator Active

1. Eric is saving money to buy a present for his sister. So far, he has $11.32 saved. He plans on spending more than $30.00 on his sister's present. Which inequality below represents how much money *(m)* he still needs to buy his sister a present?

A. $m - \$11.32 < \$30.00$
B. $m + \$11.32 > \$30.00$
C. $m - \$11.32 > \$30.00$
D. $m + \$11.32 < \$30.00$

The money plus what he has has to be more than (>) $30.

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Brief Constructed Response

Directions: For Problem 2, show all of your work in the space provided. Your work and answers will be scored on a 3-point rubric.

Calculator Inactive

2. Look at the equation below:

$x + 32.44 = 76.21$

Part A:

Solve the equation for x.

$x + 32.44 = 76.21$
$-32.44 \quad -32.44$
$x = 43.77$

Check:
43.77
+32.44
76.21 ✓

Part B:

Use what you know about equations to explain why your answer is correct. Use words, numbers, and/or symbols to support your explanation.

To solve a variable equation I have to do the inverse operation. Since subtracting is the opposite of adding, I add 32.44 to both sides of the equation.

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MSA Review
Day 20

Calculator Active

1. Which of the following groups of degree measurements cannot be the three angles of a triangle?

A. 60°, 60°, 60° $60 \times 3 = 180$ ✓

B. 30°, 90°, 60° $30+60=90+90=180$ ✓

C. 110°, 35°, 45° $110+35=145+45=190$ ✗

D. 45°, 75°, 60° $45+75=120+60=180$ ✓

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Brief Constructed Response

Directions: For Problem 2, show all of your work in the space provided. Your work and answers will be scored on a 3-point rubric.

Calculator Active

2. Erin received a box of candy for her birthday. There are 20 pieces of candy in the box. There are 10 pieces of candy with a caramel center, 3 with a nougat center, 5 with a cream center, and 2 with a coconut center.

Part A:

What is the probability that Erin will choose a piece of candy with a cream center? Express your answer as a decimal.

$\frac{5 \div 5}{20 \div 5} = \frac{1}{4} = 4\overline{)1.00}$ 0.25

8
20
20
0

Part B:

Use what you know about probability to explain how you determined your answer. Use words, numbers, and/or symbols to support your explanation.

5 out of 20 candies have a cream center.
To change from a fraction to a decimal I divide numerator by denominator.

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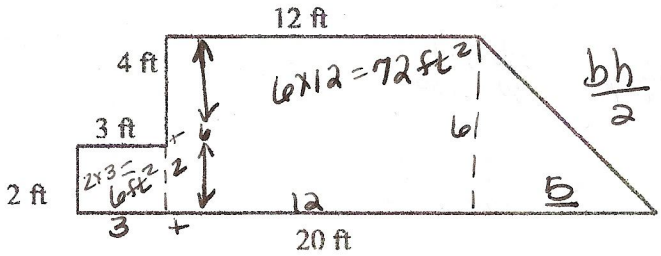
MSA Review
Day 21

Calculator Active

1. What is the area of the hexagon at the right?

A. 41 ft^2
B. 93 ft^2
C. 108 ft^2
D. 120 ft^2



$\frac{bh}{2} = \frac{5(6)}{2} = \frac{30}{2} = 15 ft^2$

$20 = 3 + 12 + _$
$20 = 15 + 5$

72
+ 6
78
+ 15
93 ft²

2. Based on the frequency table below, how many times has Marvin been paid more than $120 for his part-time job?

Pay	Frequency
0–$49	3
$50–$99	0
→ in here $100–$149	8
$150–$199	3
$200–$249	5

A. 8 times
B. 16 times
C. 19 times
D. This question cannot be answered.

$120 is in the middle of this interval, so we don't know how many of these 8 were greater than $120 and how many are less than or equal to $120.

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3. Which of the following inequalities is true?

A. $\frac{3}{5} < \frac{7}{20}$ × $\frac{12}{20} > \frac{7}{20}$

B. $\frac{1}{2} > \frac{2}{5}$ ✓ $\frac{5}{10} > \frac{4}{10}$

C. $\frac{17}{50} < \frac{19}{100}$ × $\frac{34}{100} > \frac{19}{100}$

D. $2\frac{2}{25} > 1\frac{10}{100}$ × $\frac{8}{100} < \frac{10}{100}$

4. Tamara is reaching in her change purse to get a coin for math class. She has 7 nickels, 4 pennies, 8 dimes, and 1 quarter in her change purse. What is the probability that she will pull out a penny if she is not looking?

A. 0.10

B. 0.20

C. 0.30

D. 0.40

$\frac{4}{20} = \frac{1}{5}$ 0.2

7+4+8+1
11+8+1
19+1
20

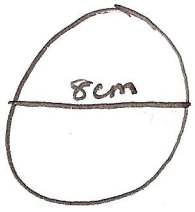
5. Riley studied the different parts of a circle. She needed to calculate the circumference of a circle for homework. The diameter of the circle is 8 cm. Which of the following statements is true?

A. The radius of the circle is about 2 cm. ×

B. The radius of the circle is about 8 cm. ×

C. The radius of the circle is about 16 cm. ×

D. NH



r = 4cm

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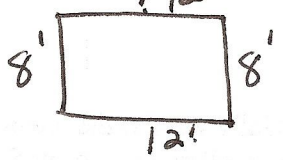
MSA Review
Day 22

Calculator Active

1. Mario has made a pen for his dog Pierre. The pen is in the shape of a rectangle. He used 40 feet of fence, and the width of the pen is 8 feet. What is the length of the pen?

A. 5 feet
B. 12 feet
C. 24 feet
D. 32 feet

fence goes around the outside



P = 40

P = S + S + S + S

40 − 16 = 24

2 | 24 → 12

12 + 8 = 20; 20 + 20 = 40 ✓

2. Which of the following number lines shows the star correctly at $^{-}8$?

A.

B.

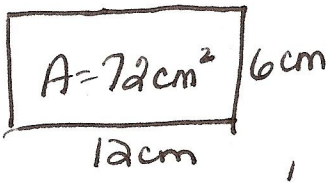
C.

D.

-5 is halfway between 0 and -10. -8 is closer to -10 than to -5.

3. The length of a rectangle is 12 cm, and the area is 72 cm^2. What is the width?

A. 4 cm
B. 5 cm
C. 6 cm
D. 7 cm



A = l × w

72 = 12 × w

72/12 = 12 × w/12

6 = w

12 × 6 = 72

12 | 72 → 6

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4. Taren is making and frosting sugar cookies. So far, she has frosted 3 blue cookies, 5 green cookies, 2 yellow cookies, 6 white cookies, and 4 red cookies. What is the probability that the next cookie she frosts will be white?

A. 20%
B. 30%
C. 40%
D. 60%

$\frac{6}{20} \times \frac{5}{5} = \frac{30}{100} = 30\%$

$3+5+2+6+4$
$8+2+6+4$
$10+6+4$
$16+4$
20

5. Rhonda and Molly went to the movies. They each bought a small popcorn and a medium drink. A small popcorn costs $3, and a medium drink costs $2. Which of the following shows how to calculate the total cost for both girls, using the distributive property?

A. $2(3+2) = (2 \cdot 3) + (2 \cdot 2)$ ✓
B. $2(3+2) = (2 \cdot 3) + 2$ ✗
C. $2(3+2) = 2 + 3 + 2$ ✗
D. $2(3+2) = (2 \cdot 3) \cdot 2$ ✗

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